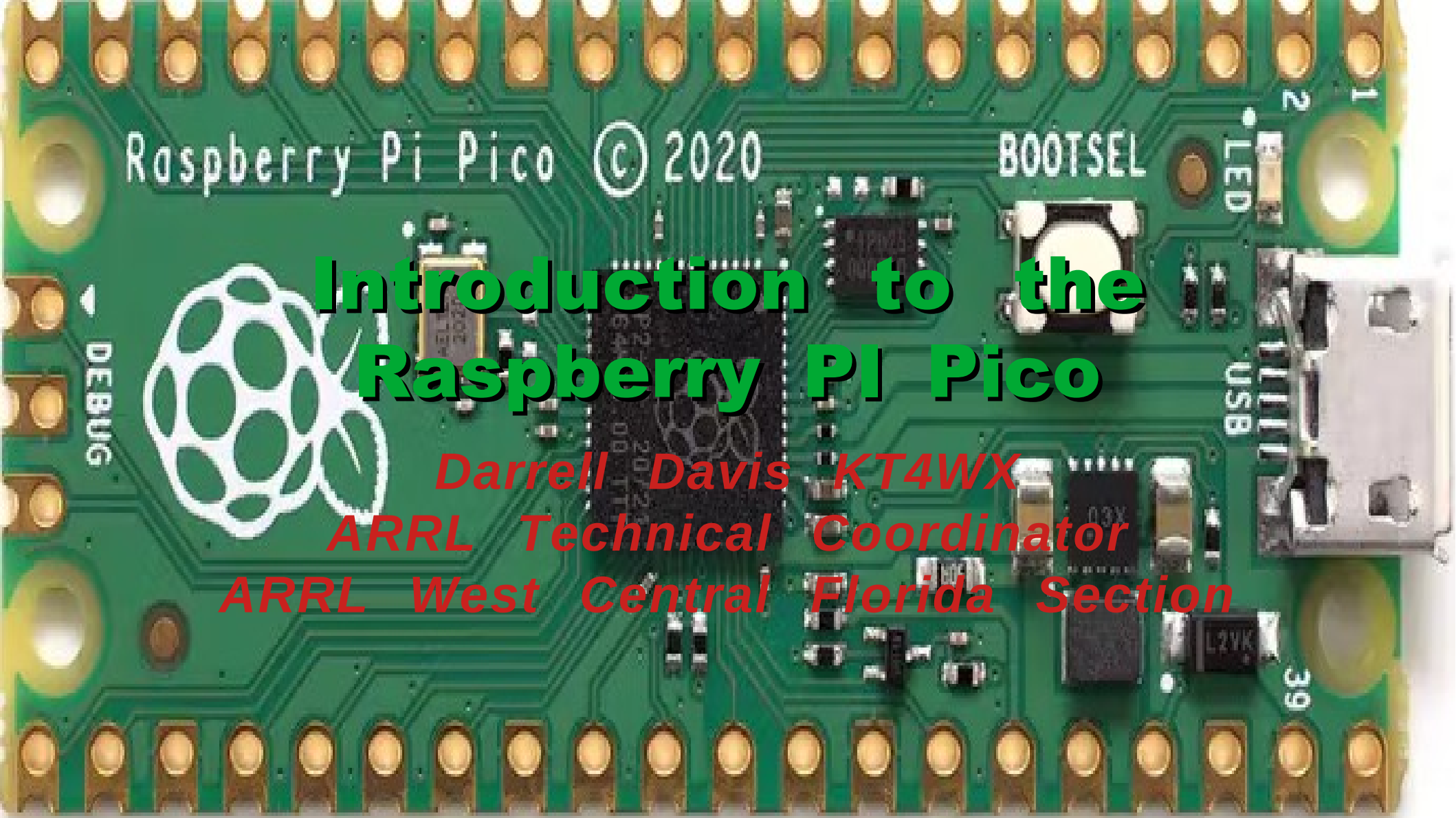
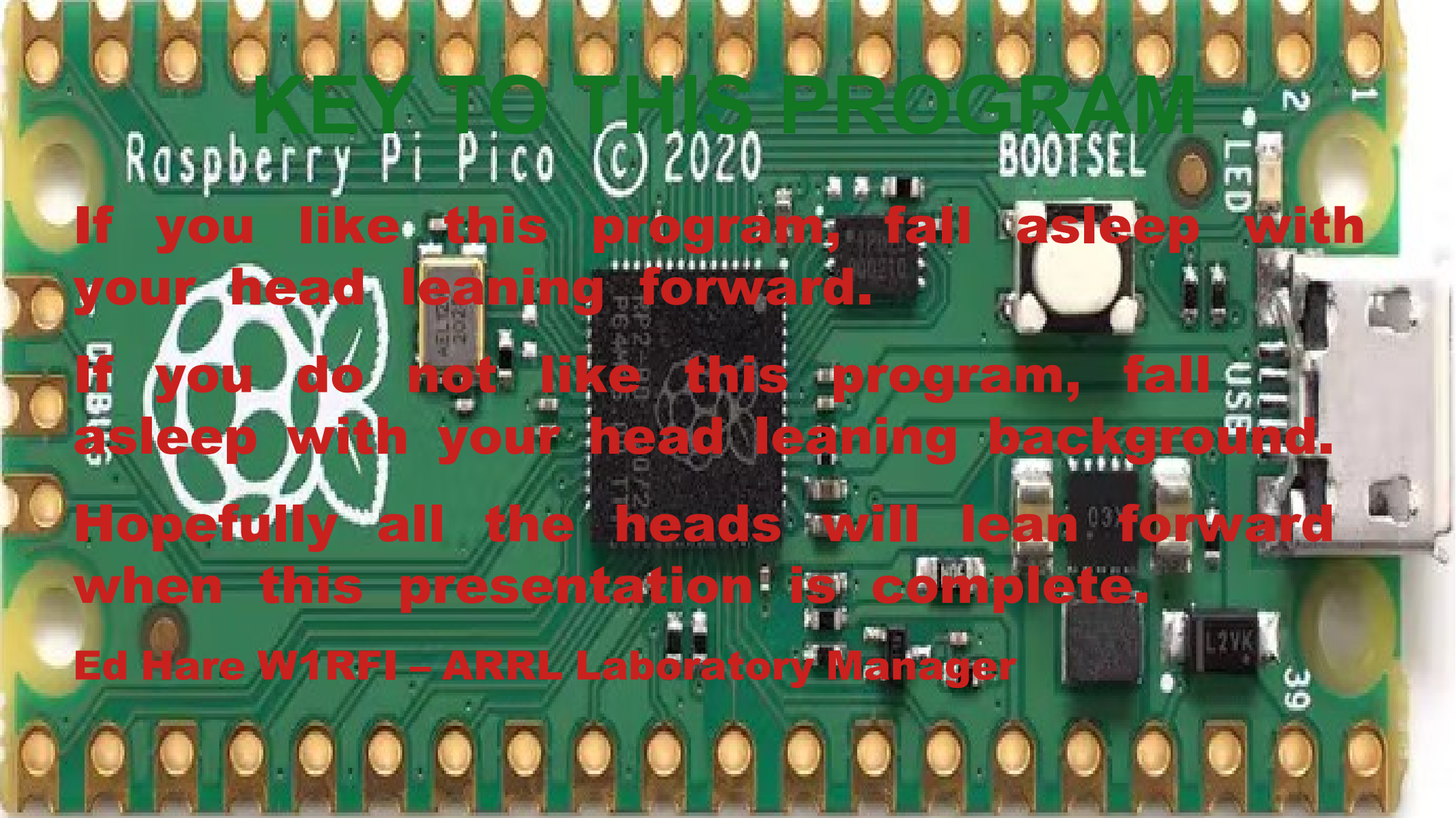
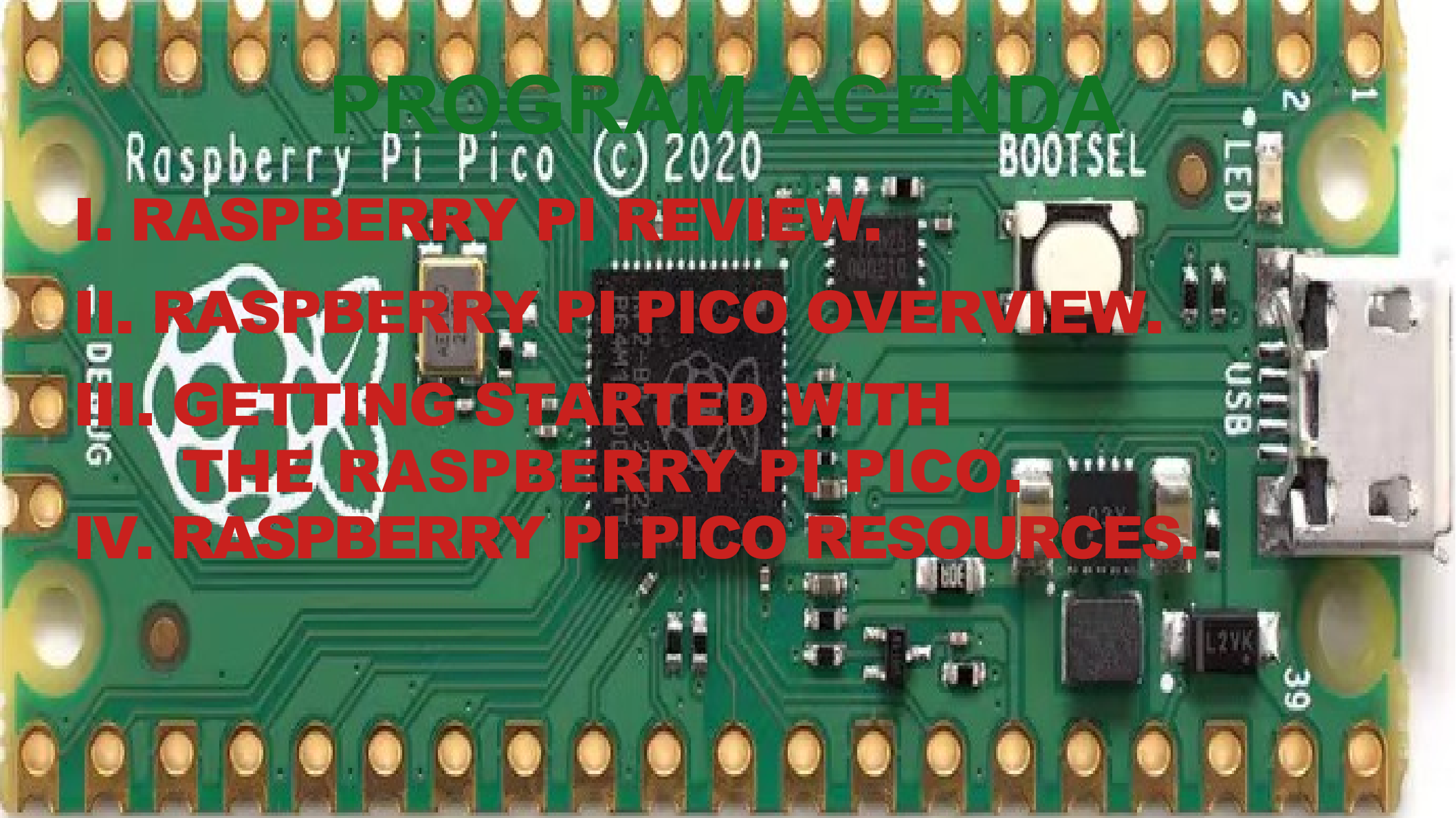

Raspberry Pi Pico © 2020
BOOTSEL
LED
USB
DEBUG
Introduction to the Raspberry PI Pico
Darrell Davis KT4WX
ARRL Technical Coordinator
ARRL West Central Florida Section


KEY TO THIS PROGRAM
Raspberry Pi Pico ©2020
BOOTSEL
LED
USB
If you like this program, fall asleep with your head leaning forward.
If you do not like this program, fall asleep with your head leaning background.
Hopefully all the heads will lean forward when this presentation is complete.
Ed Hare W1RFI – ARRL Laboratory Manager



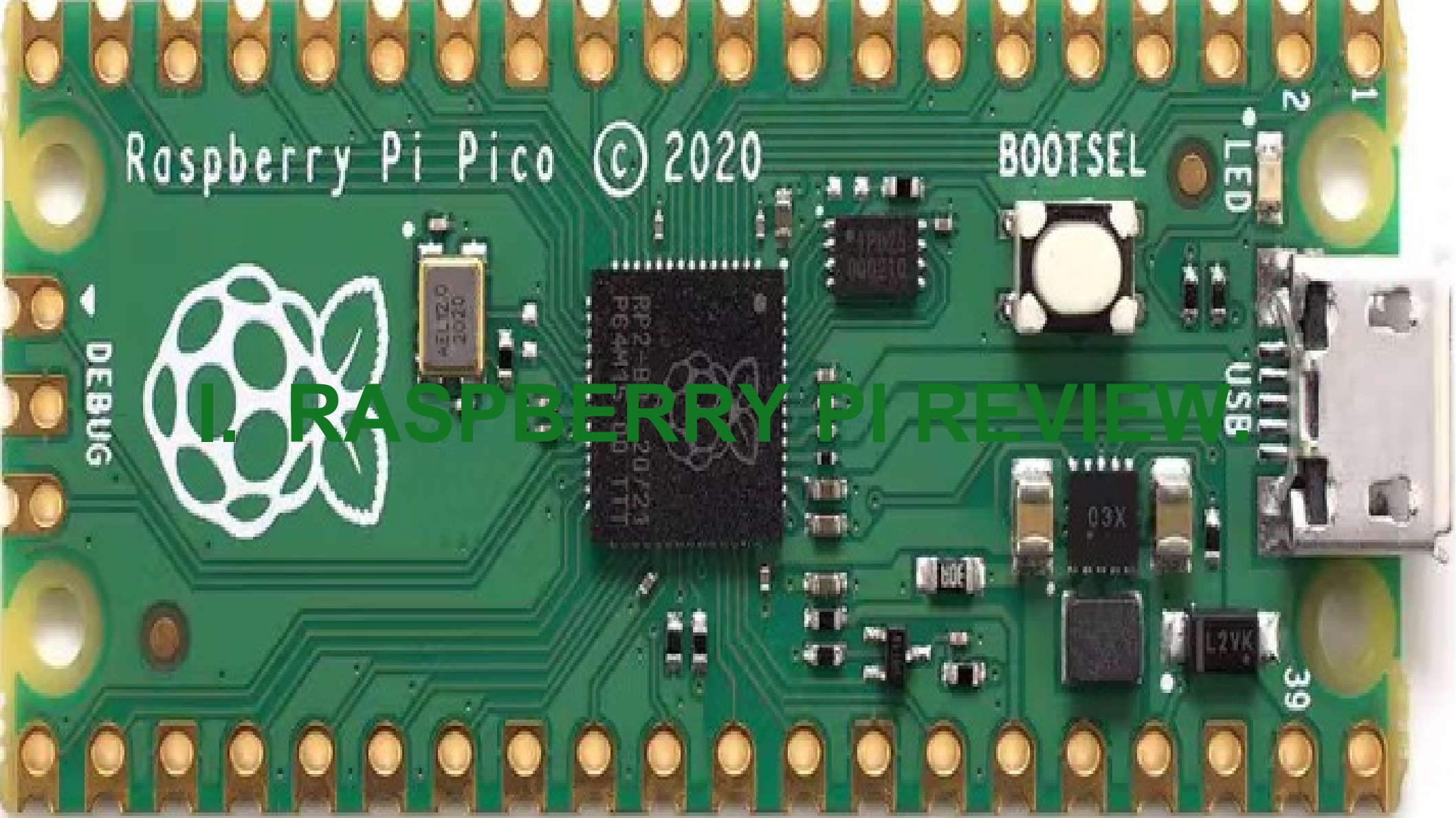
PROGRAM AGENDA

I. RASPBERRY PI REVIEW.

II. RASPBERRY PI PICO OVERVIEW.

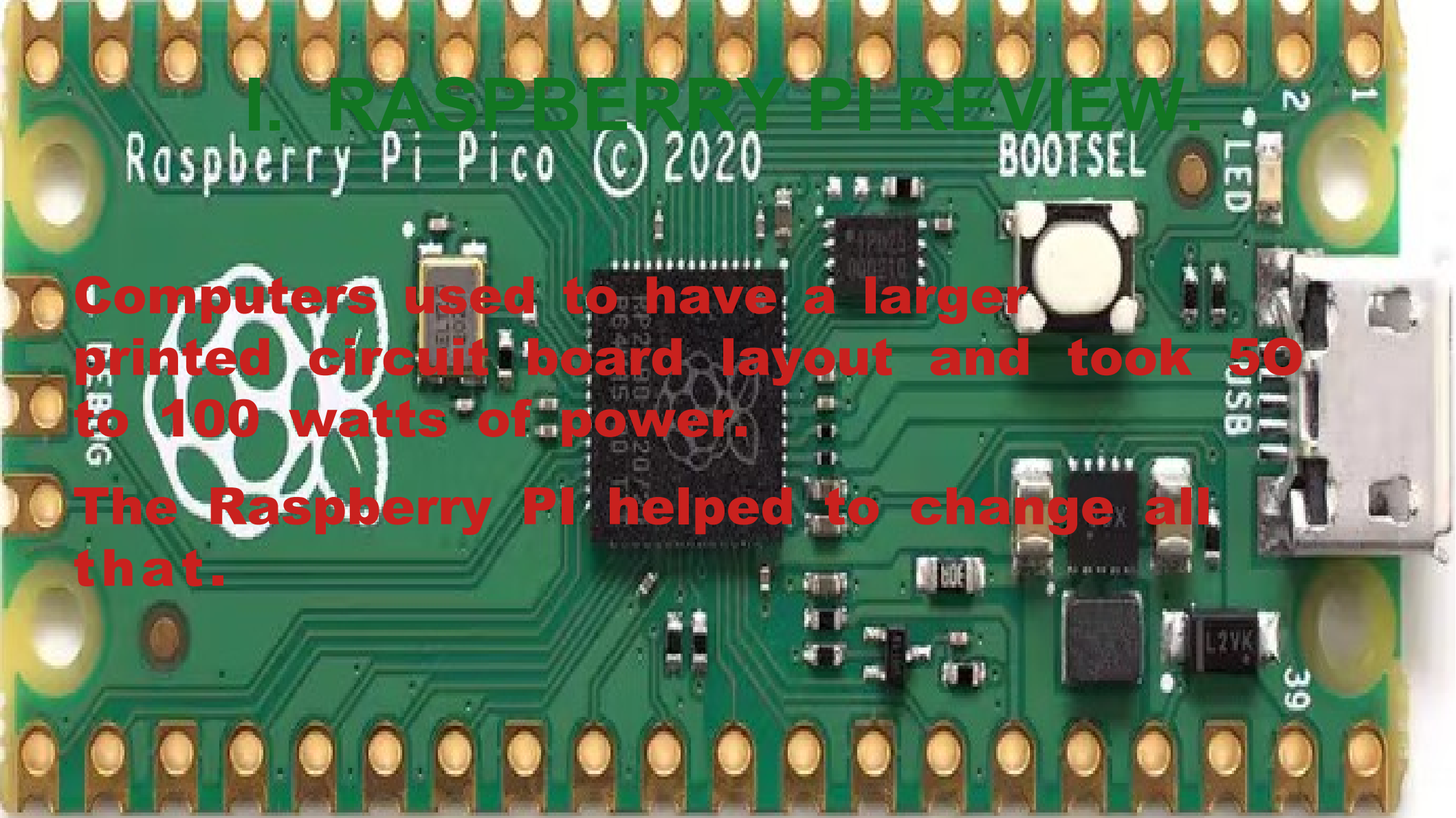
III. GETTING STARTED WITH THE RASPBERRY PI PICO.

IV. RASPBERRY PI PICO RESOURCES.



I. RASPBERRY PI REVIEW

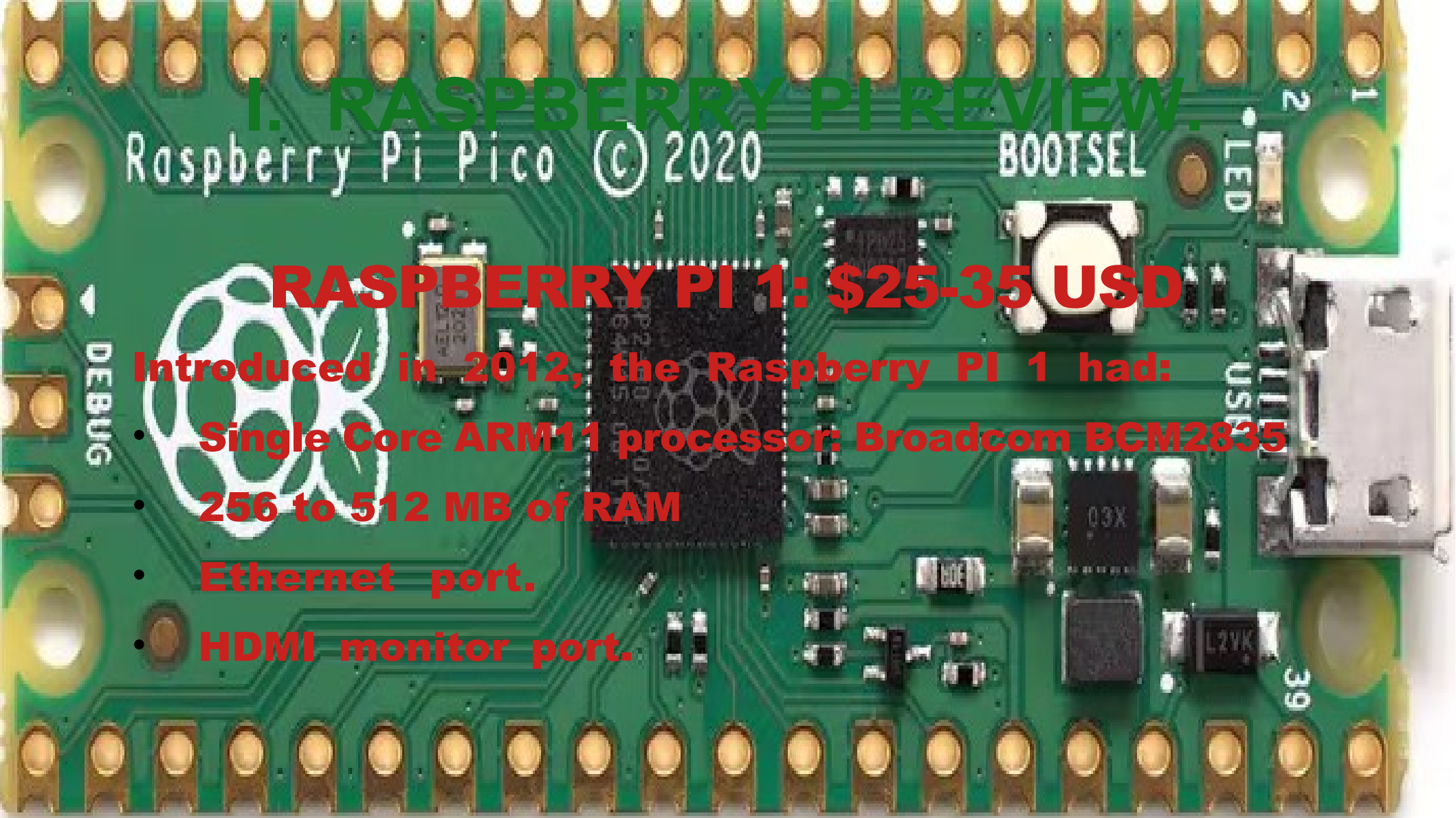
I. RASPBERRY PI REVIEW.



Computers used to have a larger printed circuit board layout and took 50 to 100 watts of power.

The Raspberry PI helped to change all that.

I. RASPBERRY PI REVIEW.



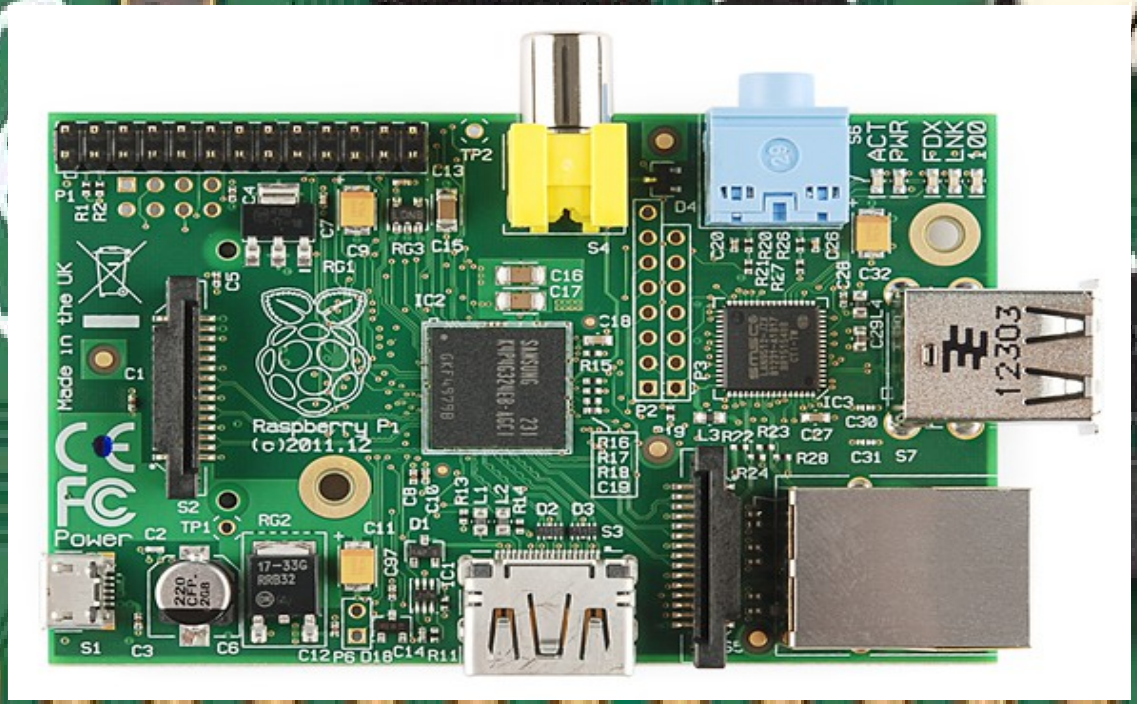
RASPBERRY PI 1: $25-35 USD

Introduced in 2012, the Raspberry PI 1 had:

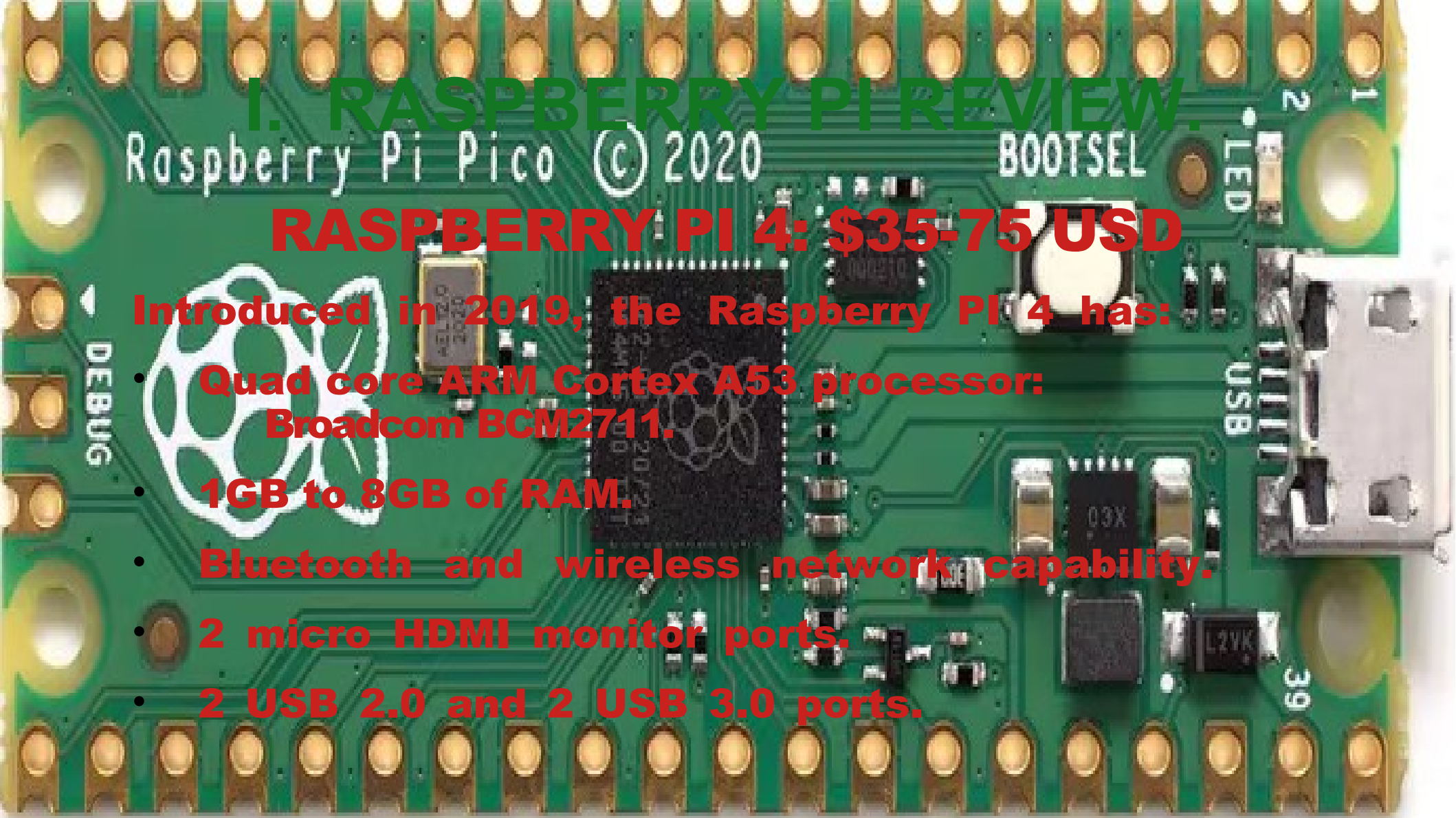
- Single Core ARM11 processor: Broadcom BCM2835
- 256 to 512 MB of RAM
- Ethernet port.
- HDMI monitor port.

I. RASPBERRY PI REVIEW.

RASPBERRY PI 1



I. RASPBERRY PI REVIEW.

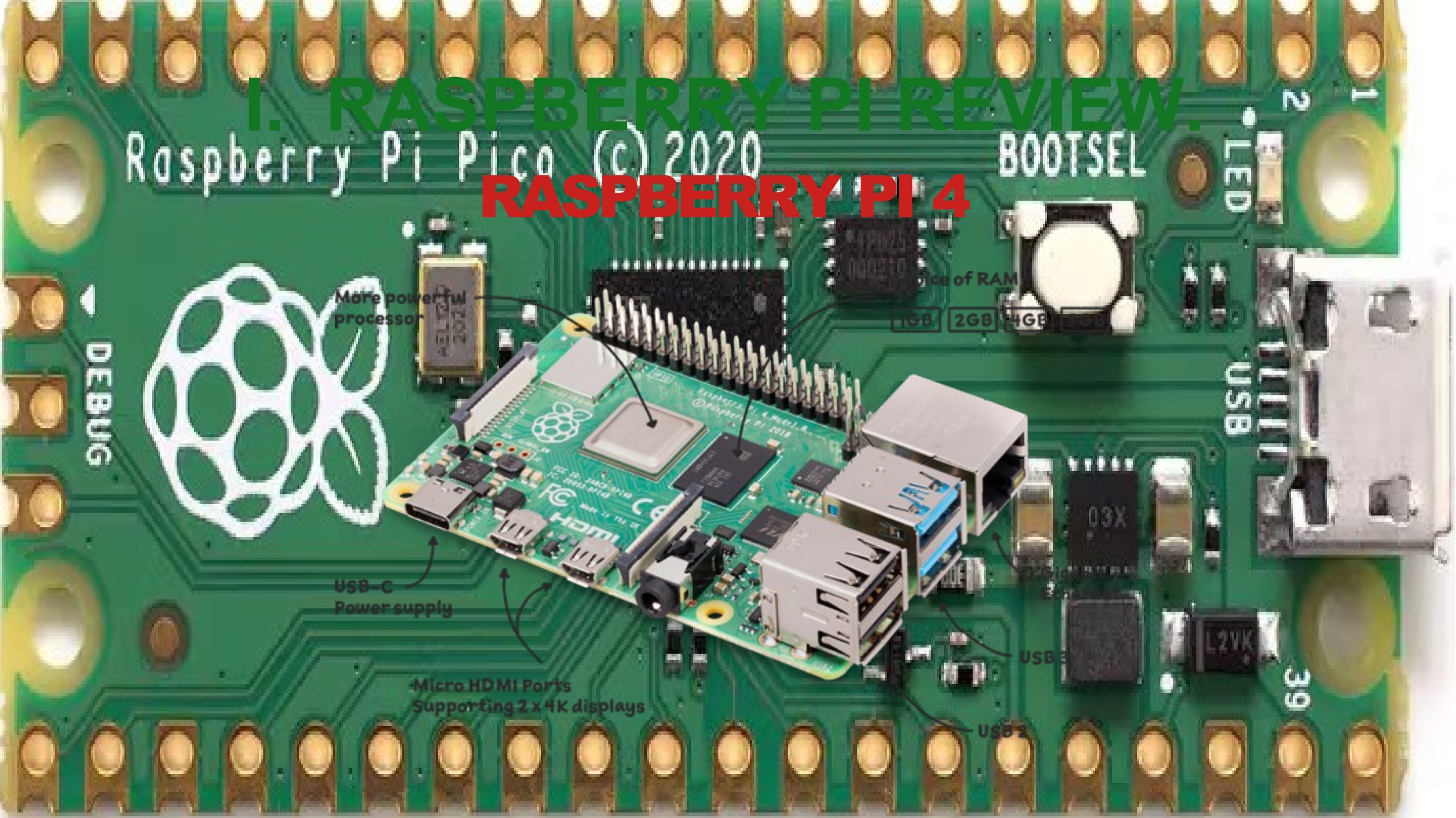


RASPBERRY PI 4: $35-75 USD

Introduced in 2019, the Raspberry PI 4 has:

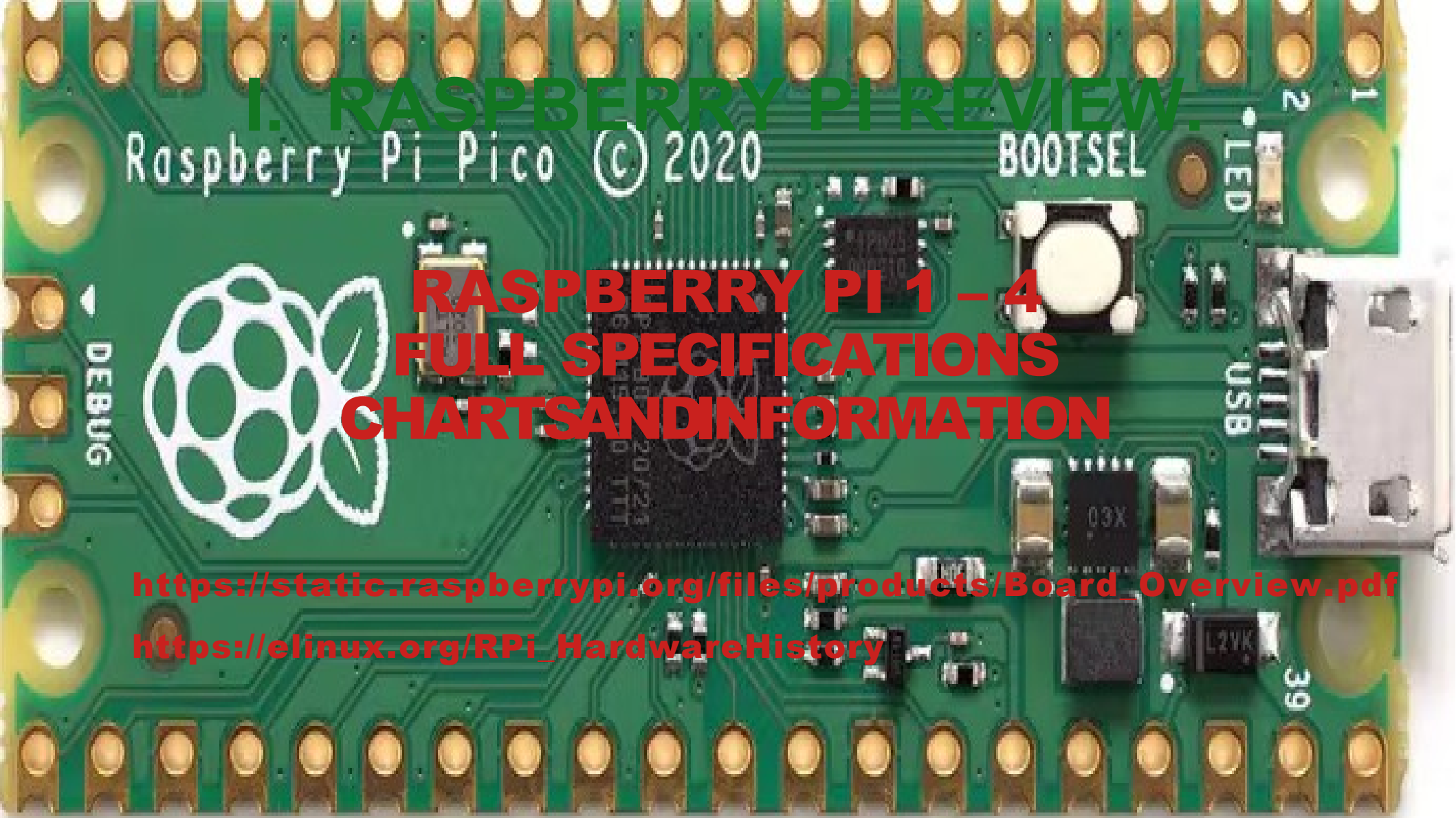
- Quad core ARM Cortex A53 processor: Broadcom BCM2711.
- 1GB to 8GB of RAM.
- Bluetooth and wireless network capability.
- 2 micro HDMI monitor ports.
- 2 USB 2.0 and 2 USB 3.0 ports.

I. RASPBERRY PI REVIEW.



RASPBERRY PI 4

I. RASPBERRY PI REVIEW.

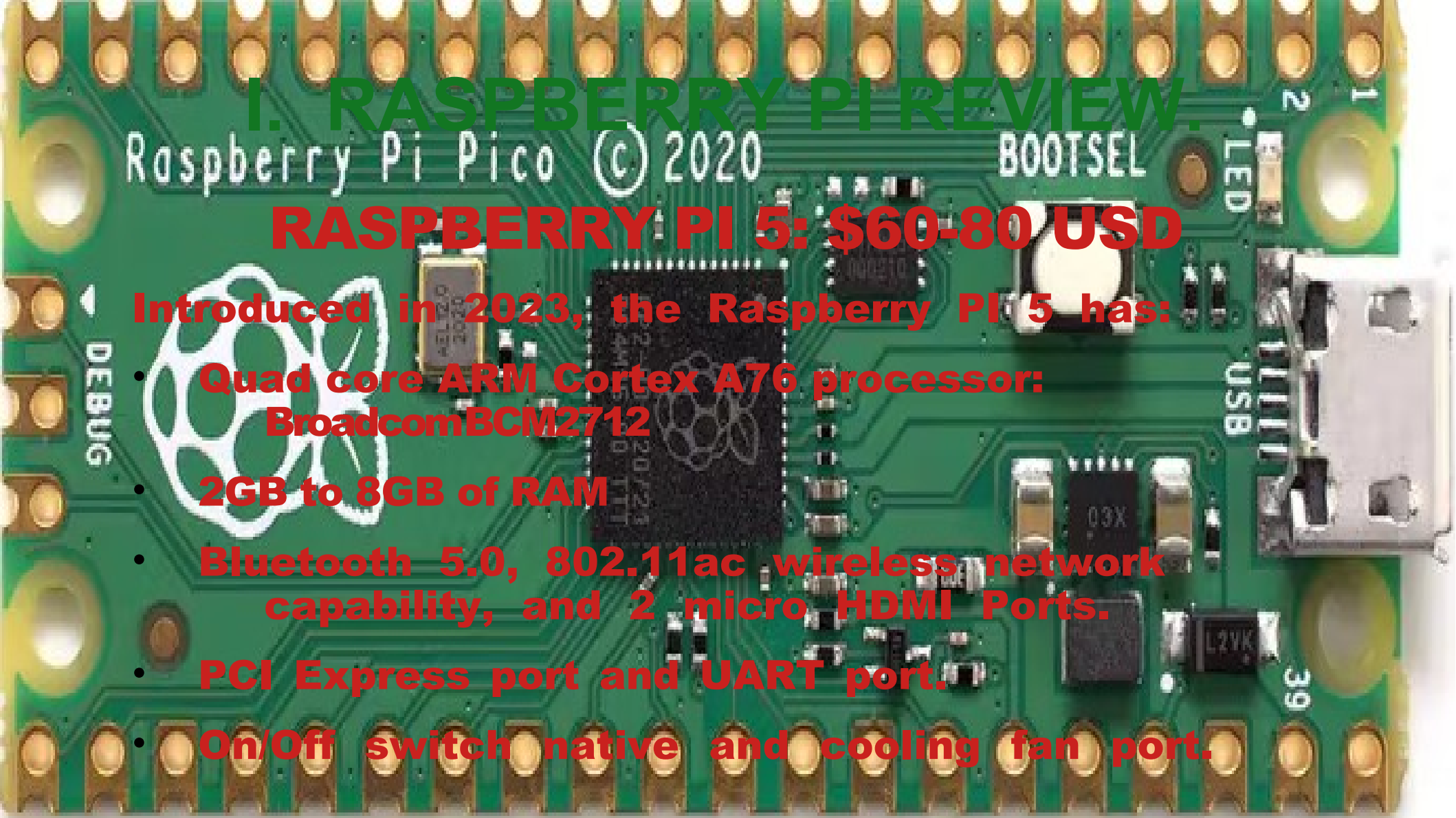


RASPBERRY PI 1 – 4
FULL SPECIFICATIONS
CHARTSANDINFORMATION

https://static.raspberrypi.org/files/products/Board_Overview.pdf

https://elinux.org/RPi_HardwareHistory

I. RASPBERRY PI REVIEW.



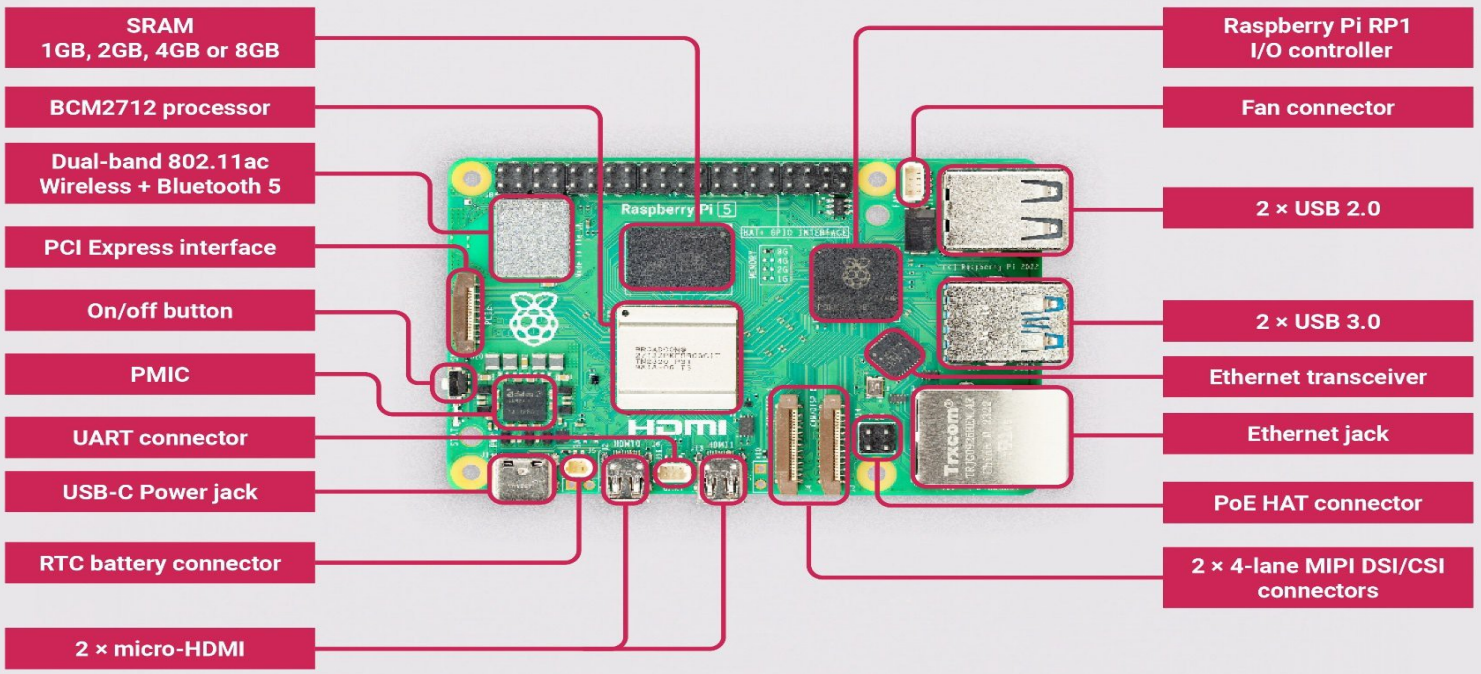
RASPBERRY PI 5: $60-80 USD

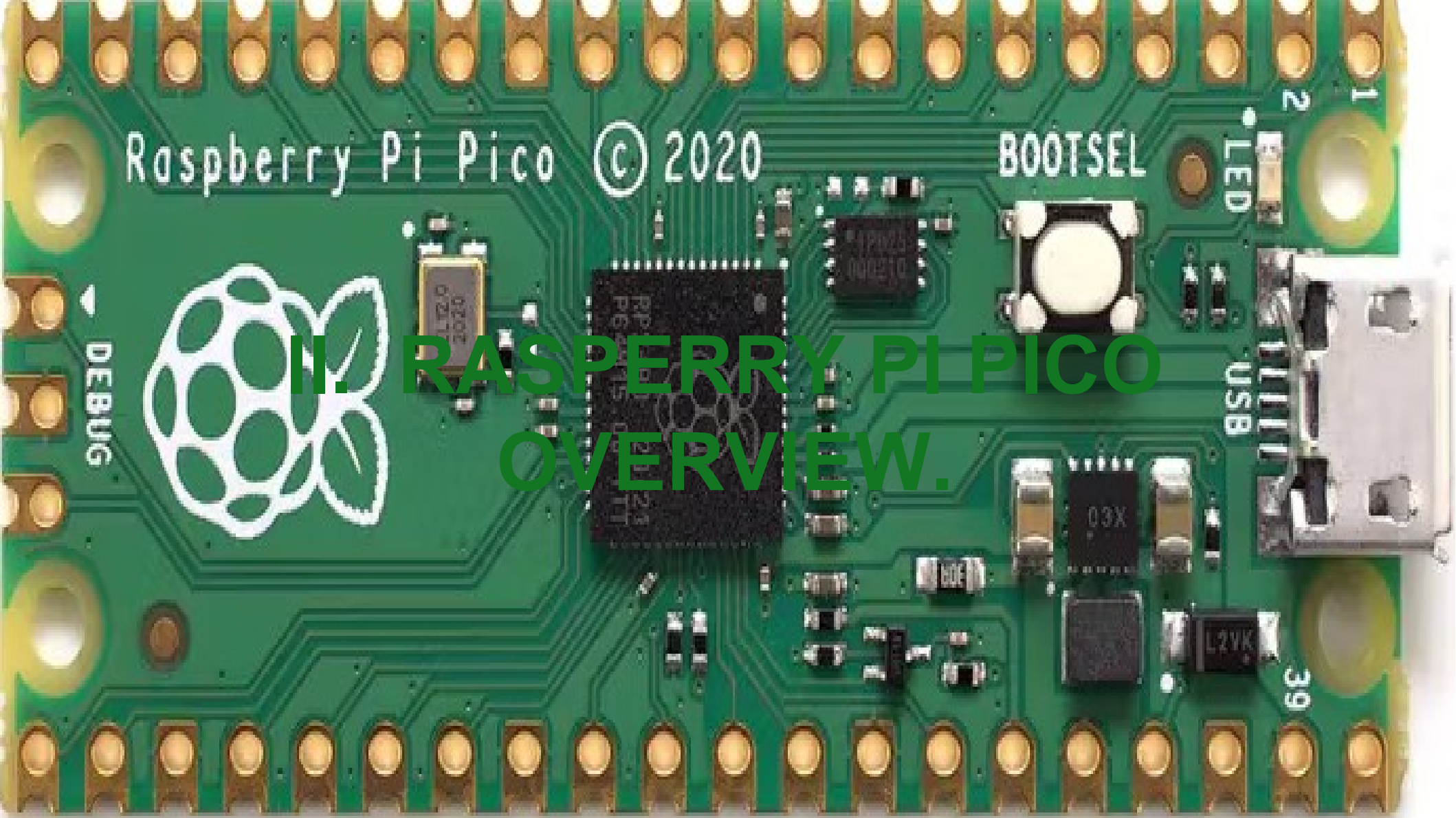
Introduced in 2023, the Raspberry PI 5 has:

- Quad core ARM Cortex A76 processor: BroadcomBCM2712
- 2GB to 8GB of RAM
- Bluetooth 5.0, 802.11ac wireless network capability, and 2 micro HDMI Ports.
- PCI Express port and UART port.
- On/Off switch native and cooling fan port.

I. RASPBERRY PI REVIEW.

RASPBERRY PI 5

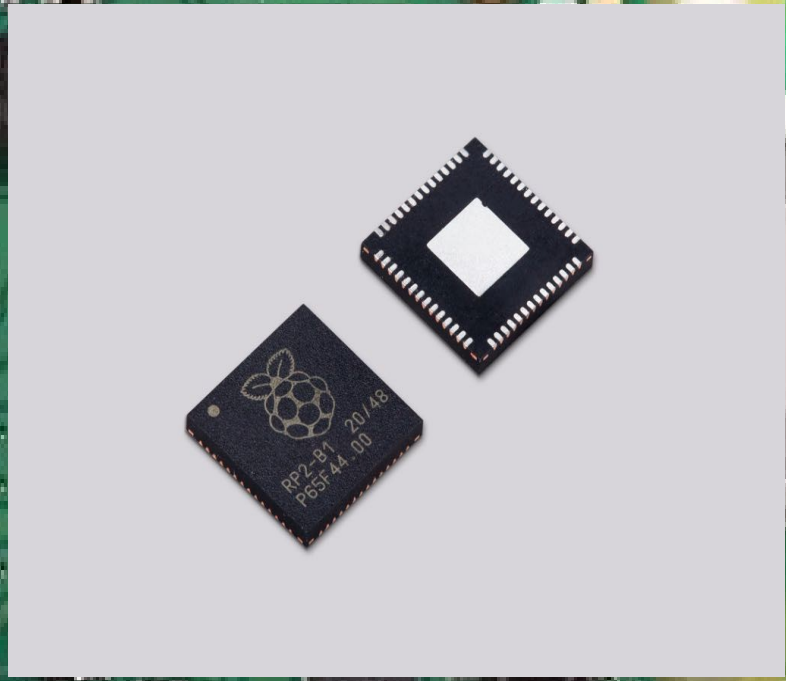




II. RASPERRY PI PICO OVERVIEW.

II. RASPERRY PI PICO OVERVIEW.

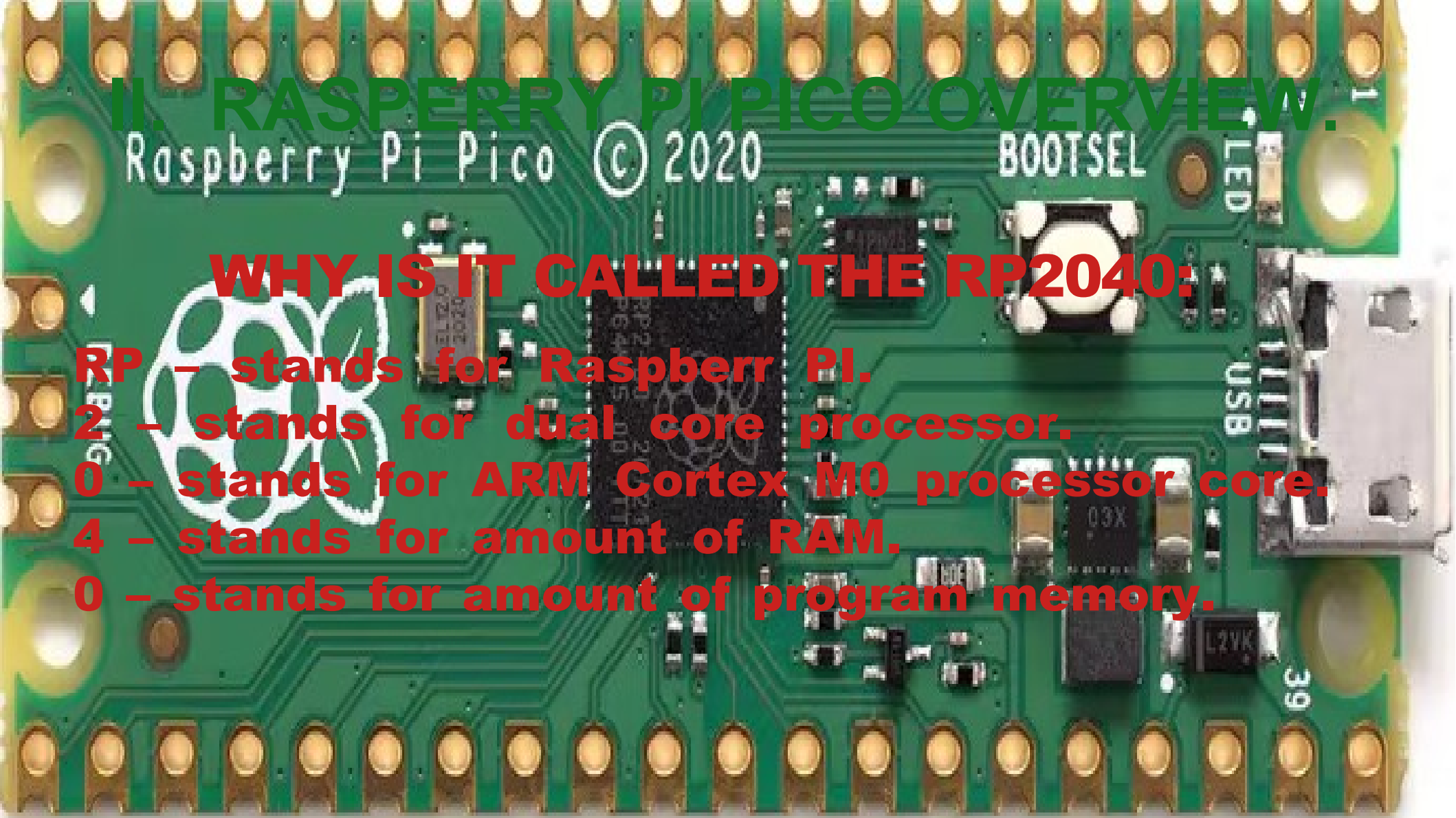
In January 2021, The Raspberry PI foundation, entered the world of the embedded microcontorller, and developed their first microcontroller:



The RPI 2040.

https://datasheets.raspberrypi.com/rp2040/rp2040-datasheet.pdf

II. RASPERRY PI PICO OVERVIEW.



WHY IS IT CALLED THE RP2040:

RP – stands for Raspberr PI.

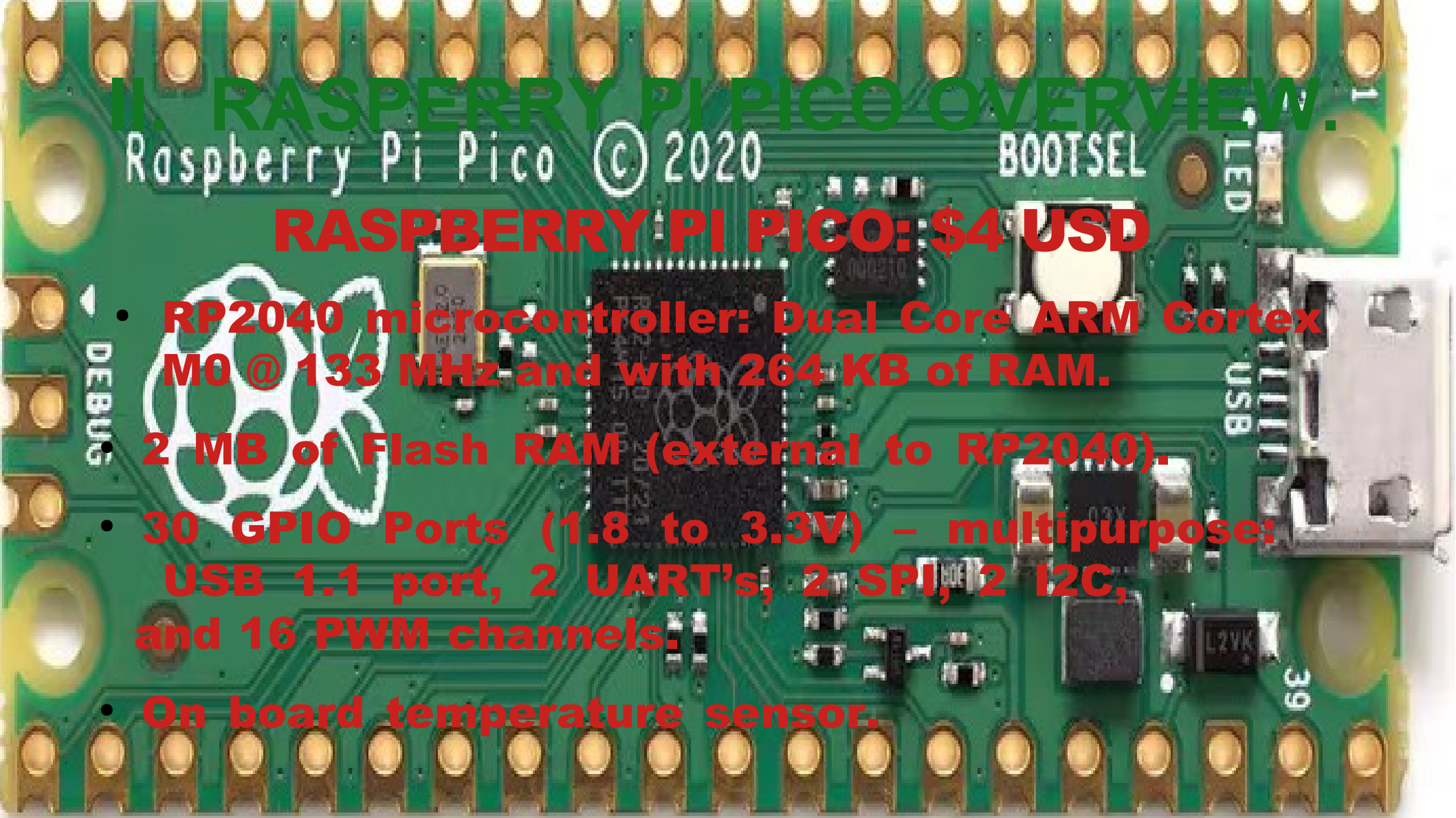
2 – stands for dual core processor.

0 – stands for ARM Cortex M0 processor core.

4 – stands for amount of RAM.

0 – stands for amount of program memory.

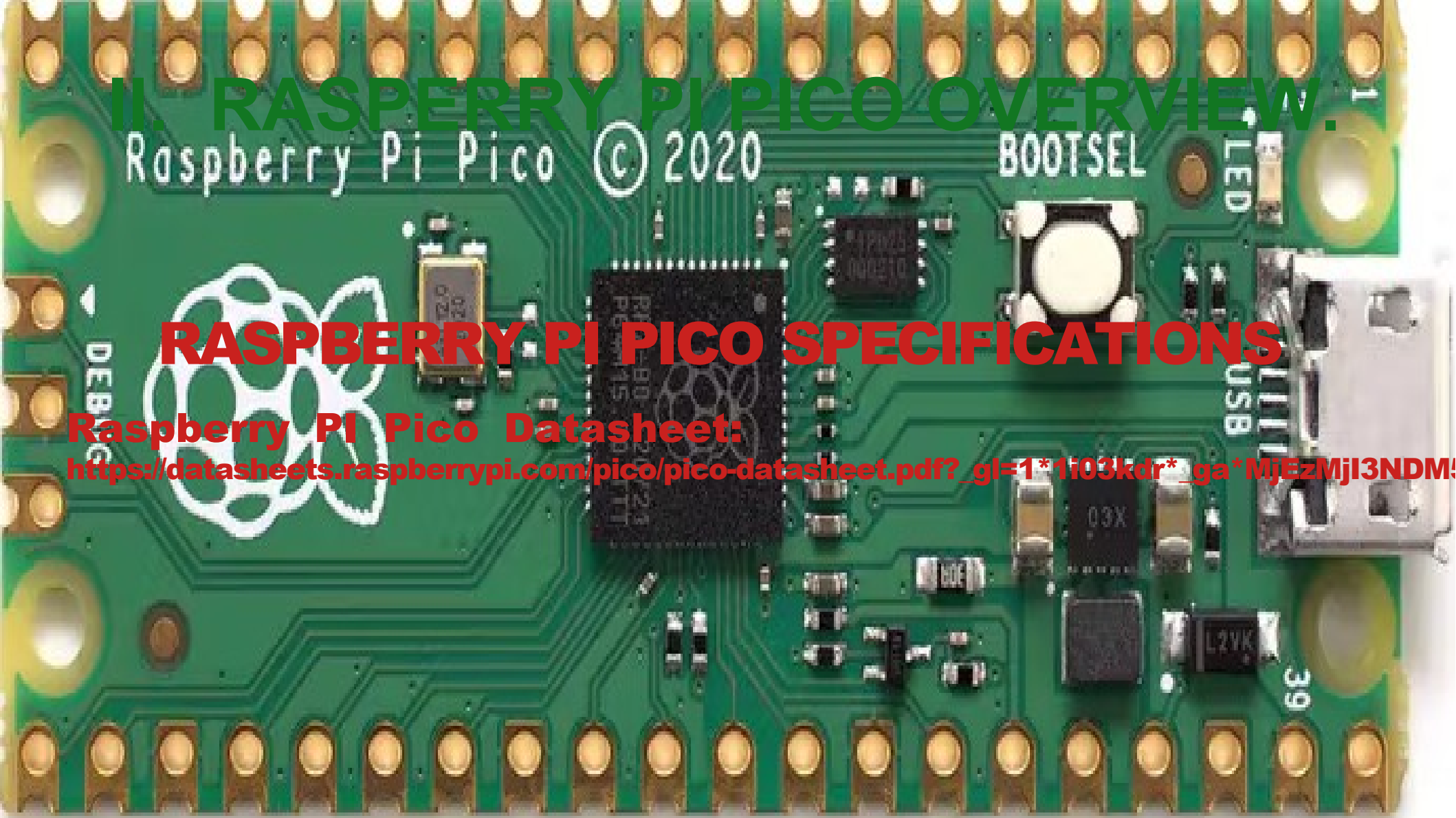
II. RASPBERRY PI PICO OVERVIEW.



RASPBERRY PI PICO: $4 USD

- RP2040 microcontroller: Dual Core ARM Cortex M0 @ 133 MHz and with 264 KB of RAM.
- 2 MB of Flash RAM (external to RP2040).
- 30 GPIO Ports (1.8 to 3.3V) – multipurpose: USB 1.1 port, 2 UART's, 2 SPI, 2 I2C, and 16 PWM channels.
- On board temperature sensor.

II. RASPBERRY PI PICO OVERVIEW.

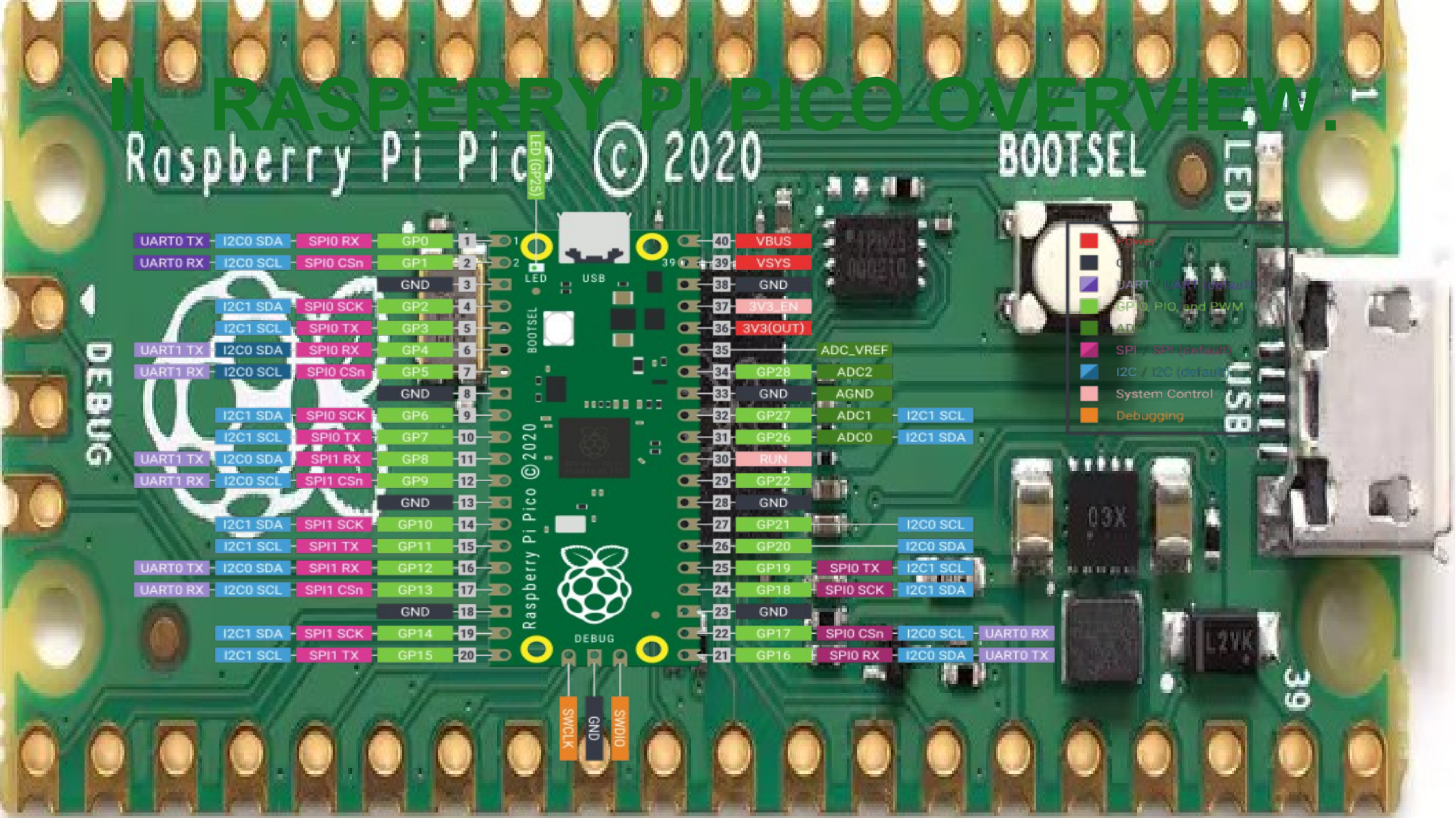


RASPBERRY PI PICO SPECIFICATIONS

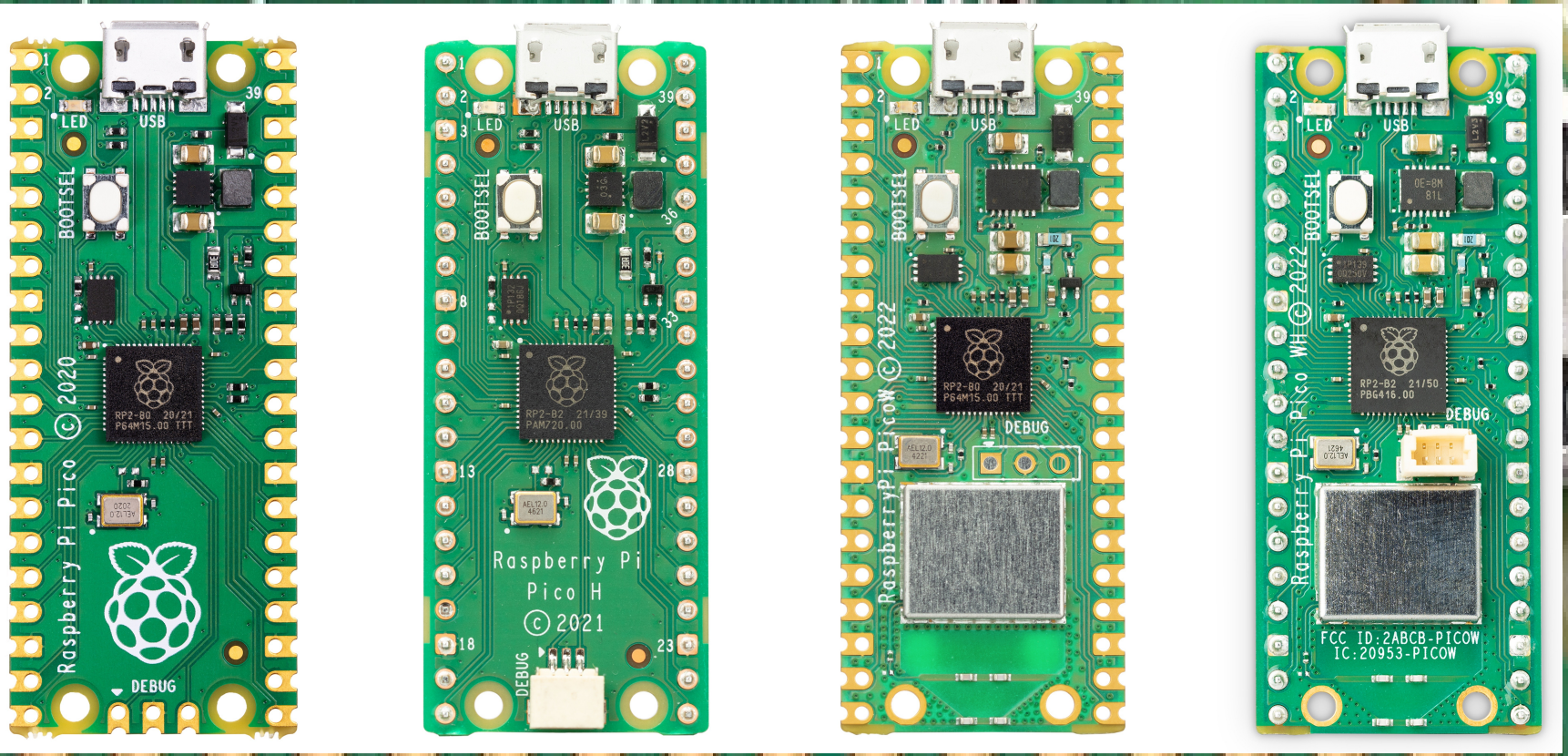
Raspberry Pi Pico Datasheet:

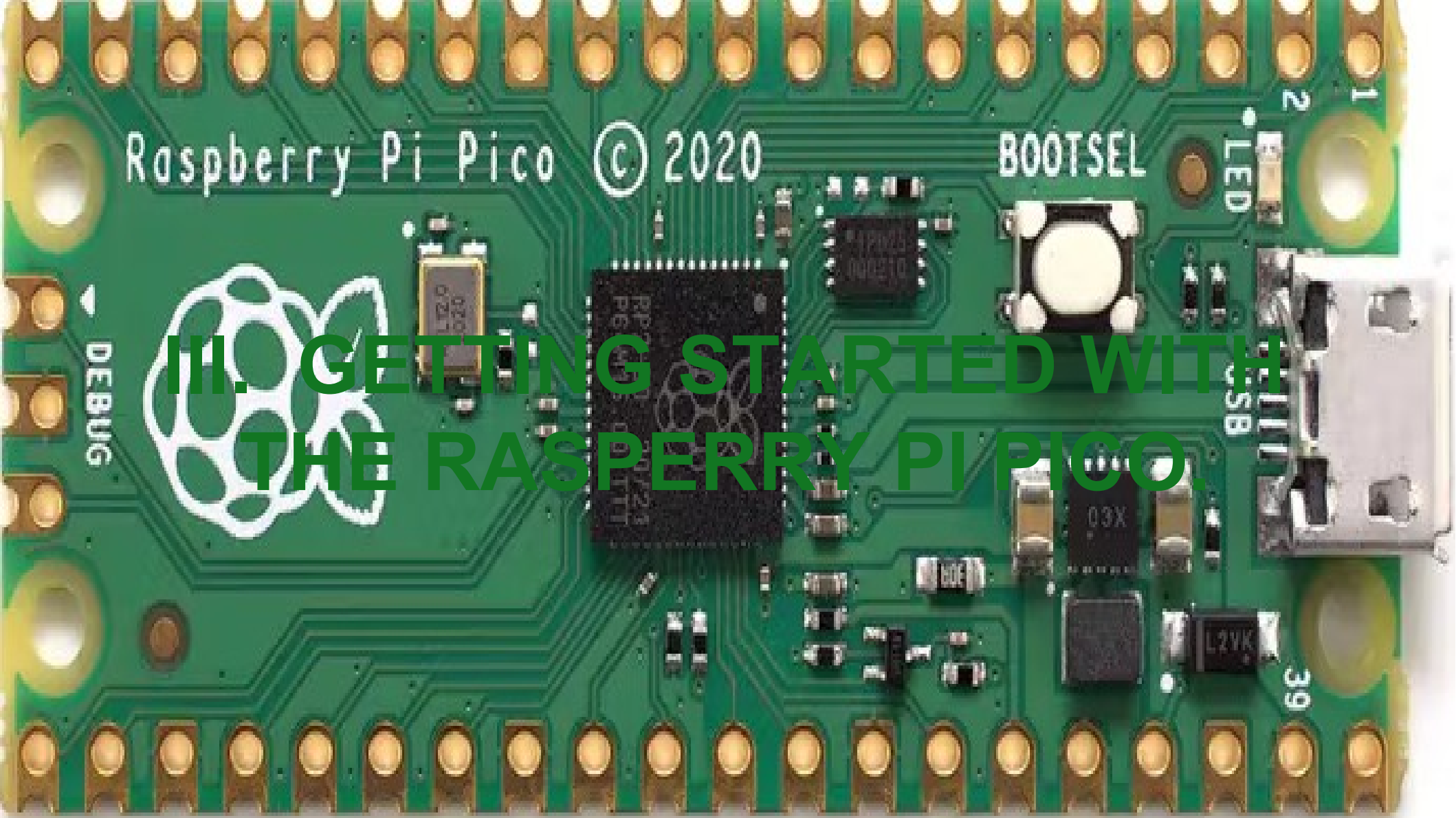
https://datasheets.raspberrypi.com/pico/pico-datasheet.pdf?_gl=1*1i03kdr*_ga*MjEzMjI3NDM5

II. RASPBERRY PI PICO OVERVIEW.



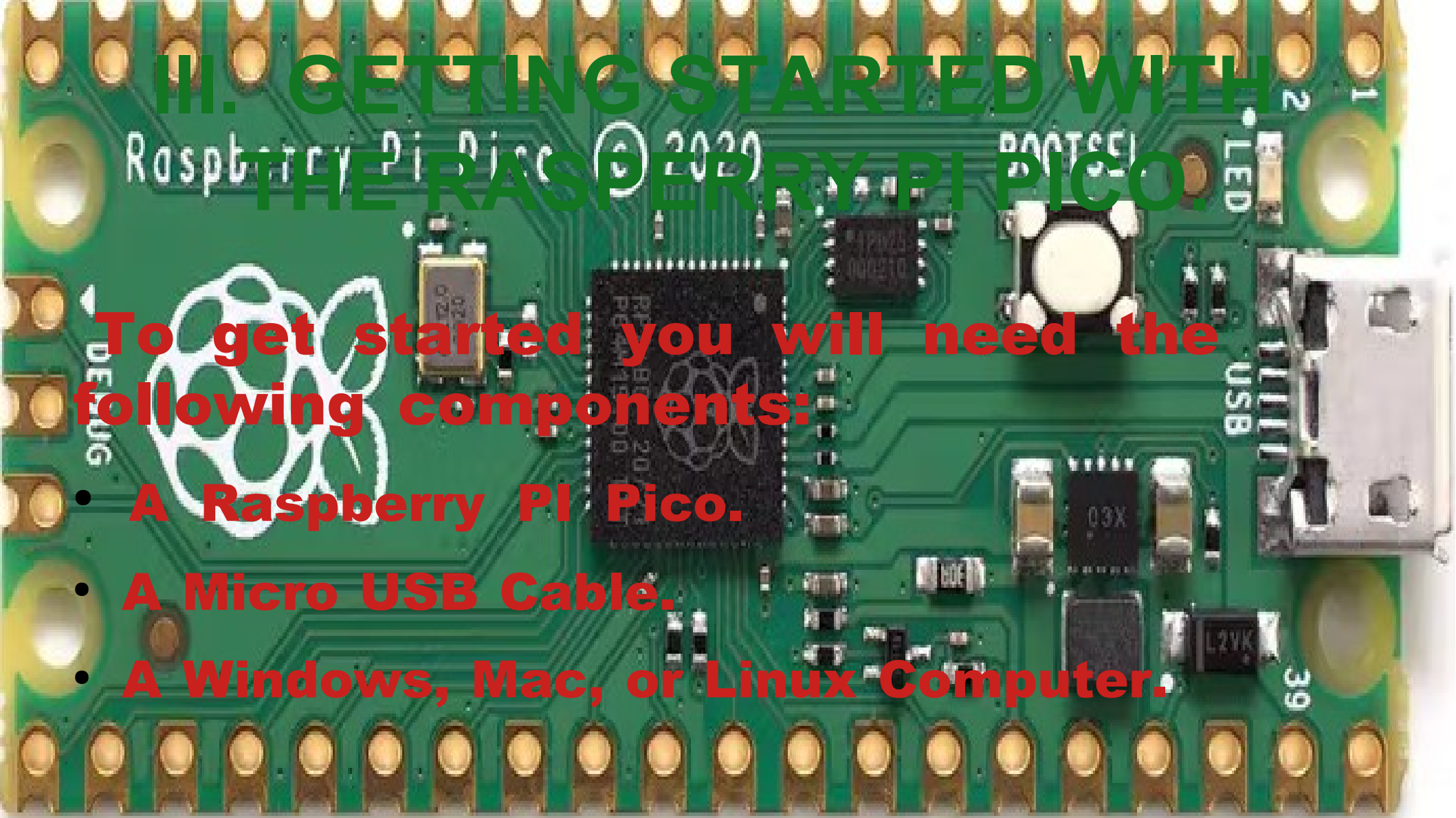
II. RASPBERRY PI PICO OVERVIEW.





II. GETTING STARTED WITH THE RASPERRY PI PICO.

III. GETTING STARTED WITH THE RASPBERRY PI PICO.

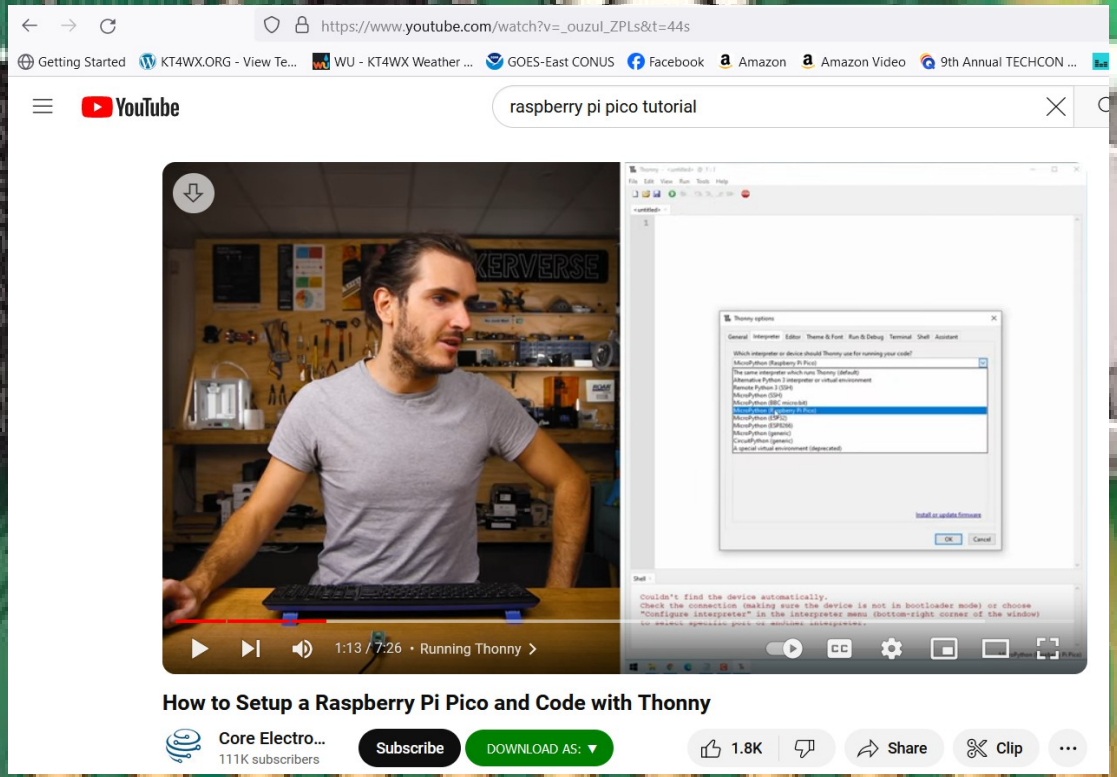


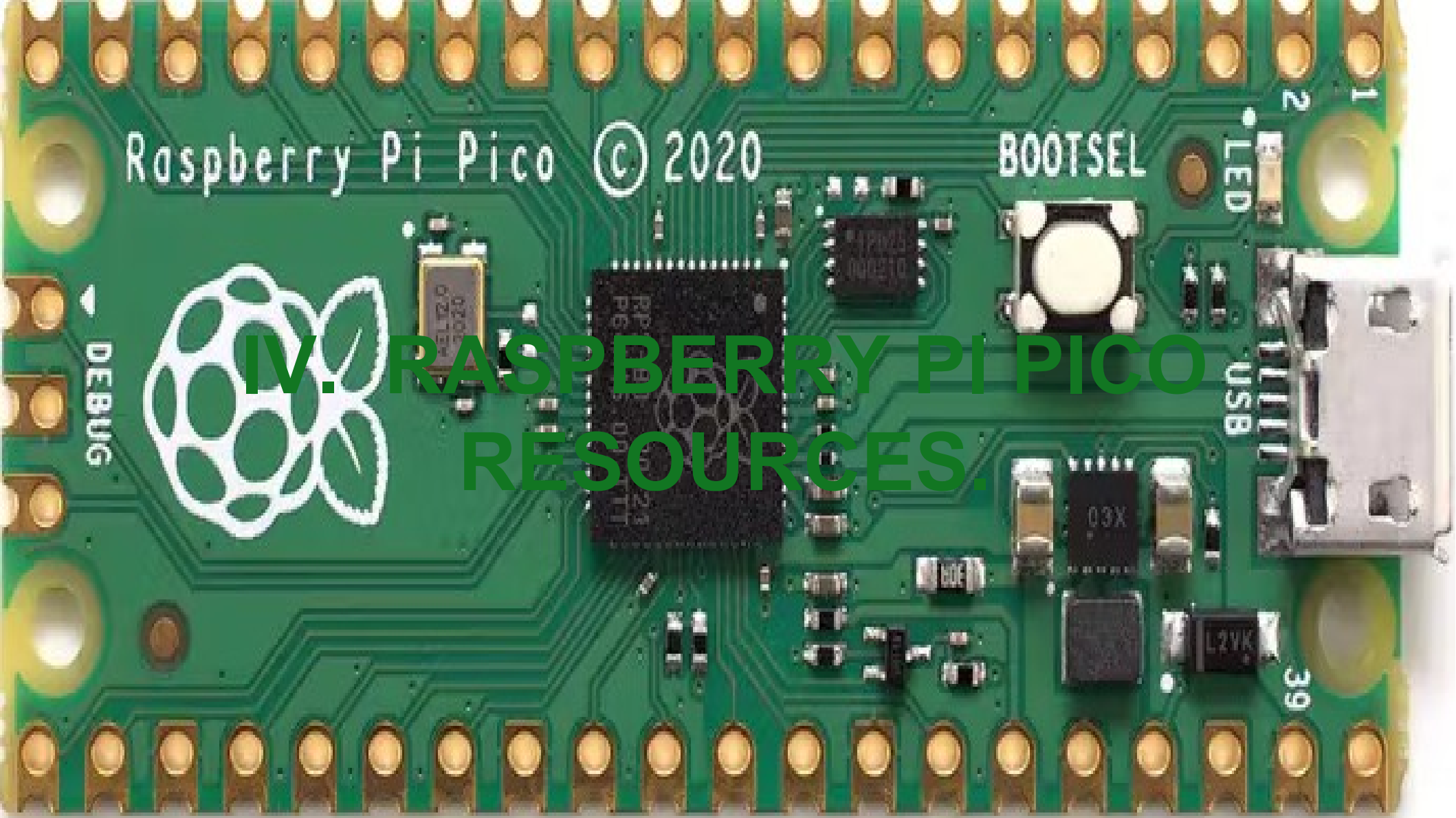
To get started you will need the following components:

- A Raspberry PI Pico.
- A Micro USB Cable.
- A Windows, Mac, or Linux Computer.

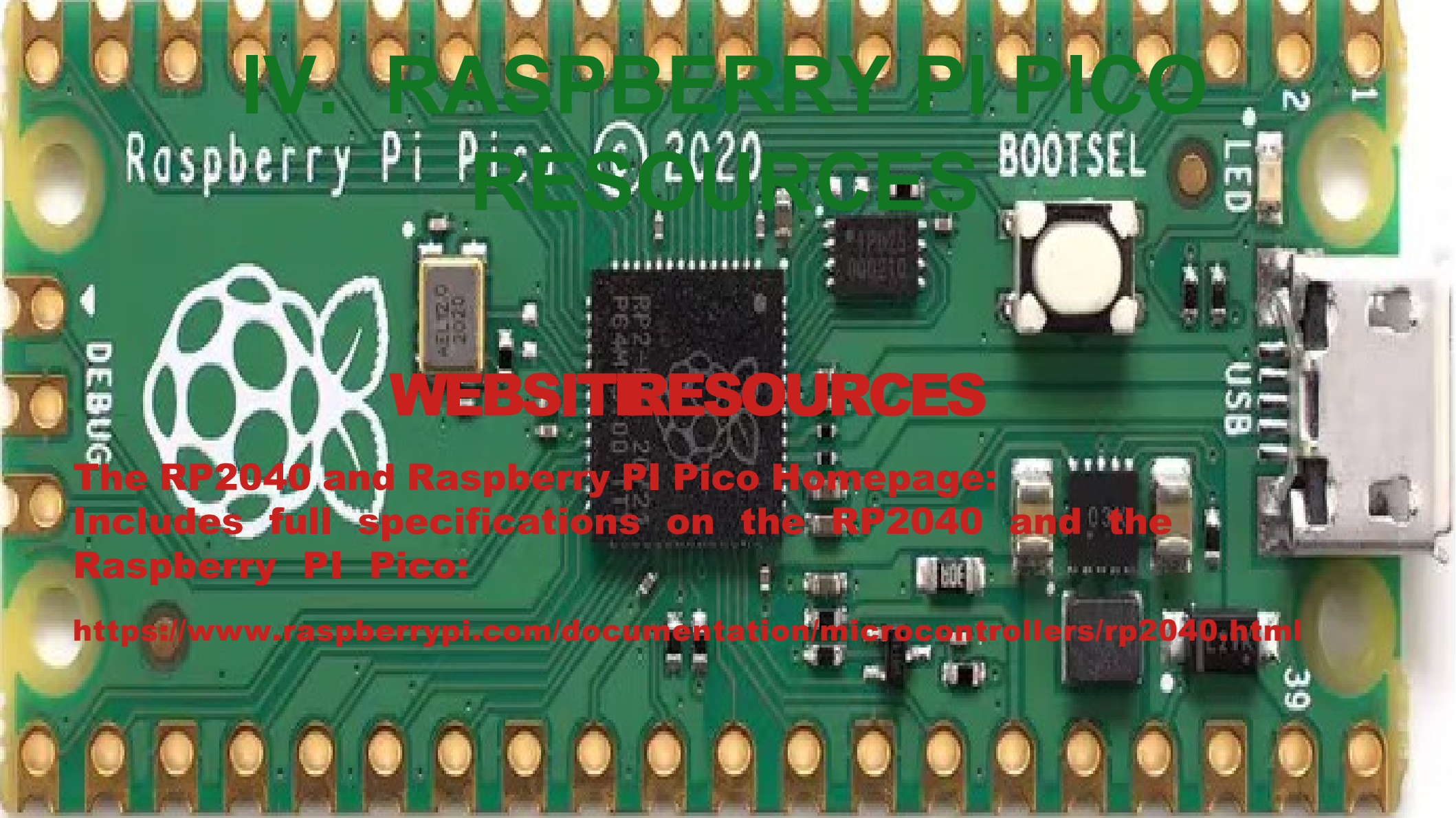
III. GETTING STARTED WITH THE RASPBERRY PI PICO

Good Startup video from the Core Electronics YouTube Channel on the Raspberry PI




Raspberry Pi Pico © 2020
BOOTSEL
LED
DEBUG
USB
IV. RASPBERRY PI PICO RESOURCES.

IV. RASPBERRY PI PICO RESOURCES

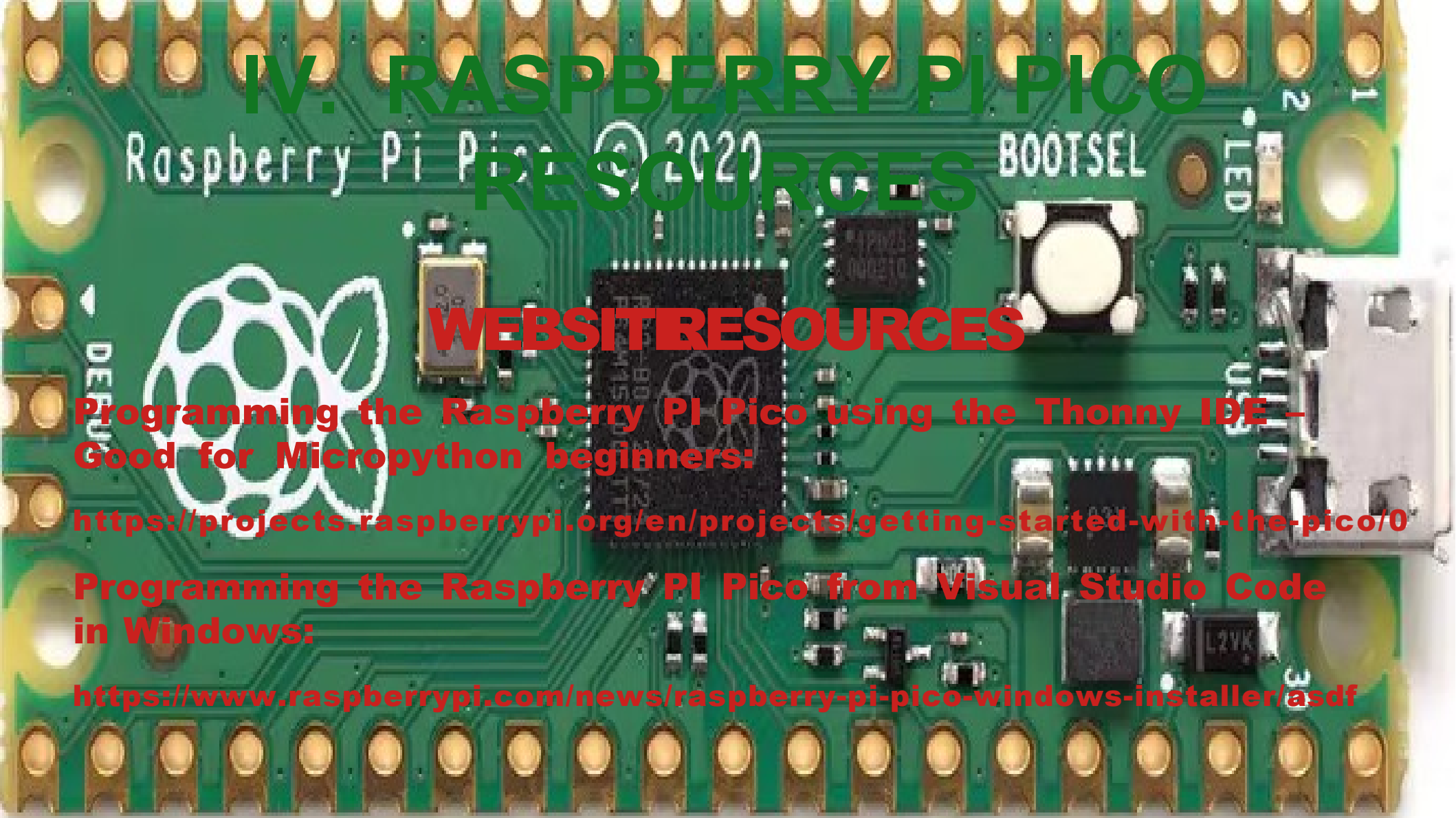


WEBSITE RESOURCES

The RP2040 and Raspberry PI Pico Homepage: Includes full specifications on the RP2040 and the Raspberry PI Pico:

https://www.raspberrypi.com/documentation/microcontrollers/rp2040.html

IV. RASPBERRY PI PICO RESOURCES



WEBSITE RESOURCES

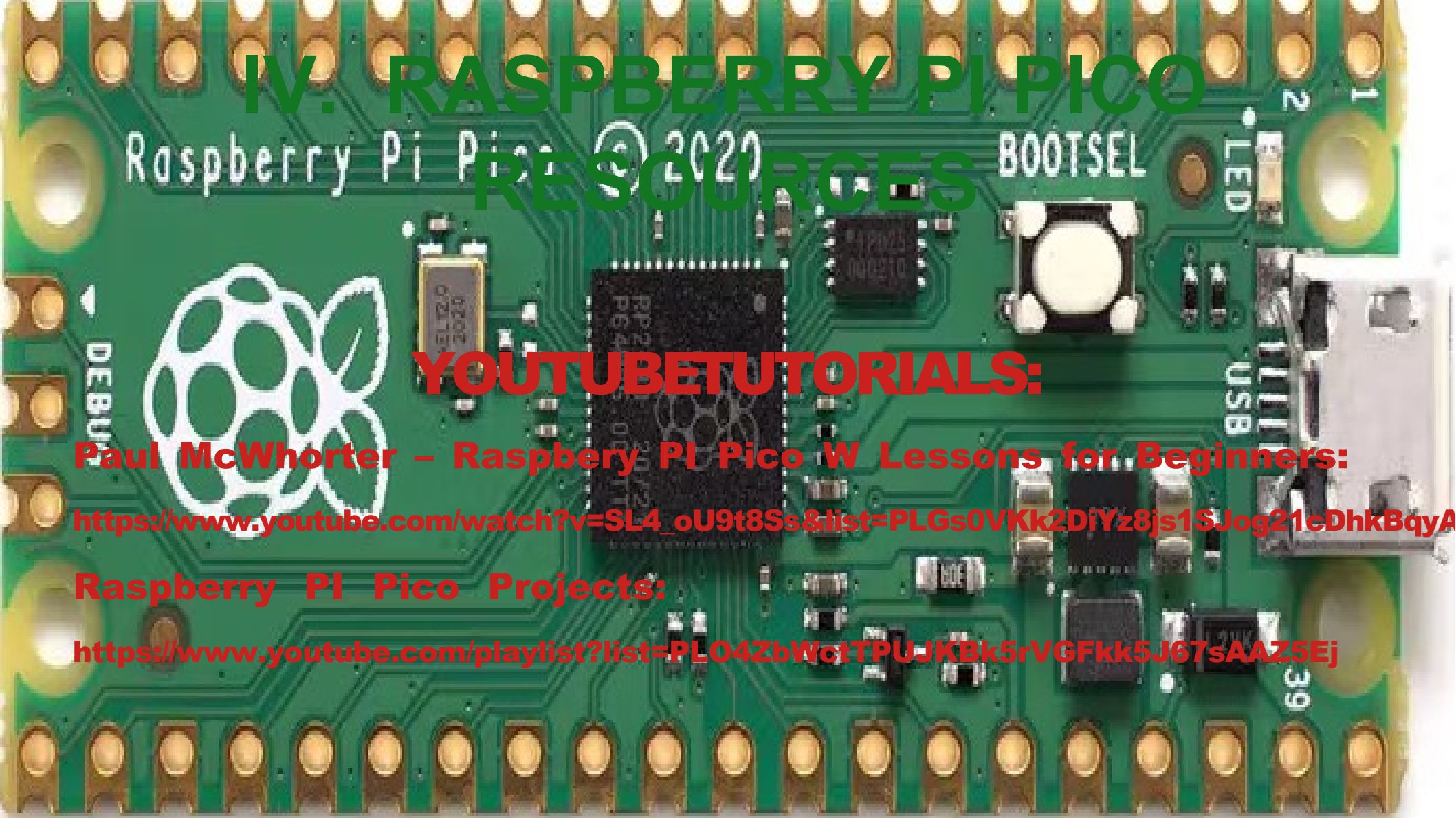
Programming the Raspberry PI Pico using the Thonny IDE – Good for Micropython beginners:

https://projects.raspberrypi.org/en/projects/getting-started-with-the-pico/0

Programming the Raspberry PI Pico from Visual Studio Code in Windows:

https://www.raspberrypi.com/news/raspberry-pi-pico-windows-installer/asdf

IV. RASPBERRY PI PICO RESOURCES



YOUTUBETUTORIALS:

Paul McWhorter – Raspbery PI Pico W Lessons for Beginners:

https://www.youtube.com/watch?v=SL4_oU9t8Ss&list=PLGs0VKk2DiYz8js1SJog21cDhkBqyA

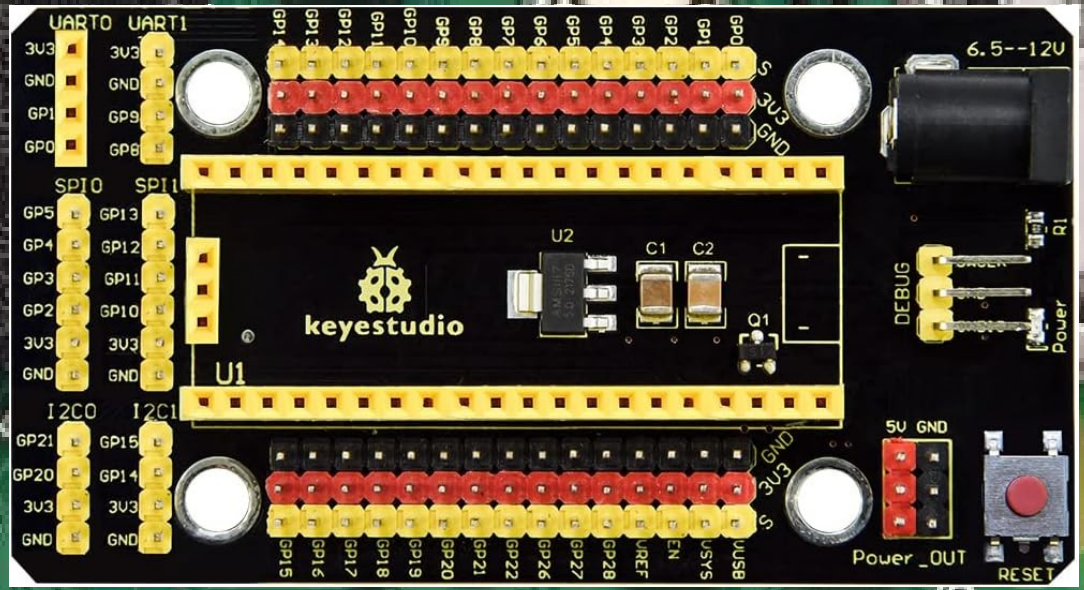
Raspberry PI Pico Projects:

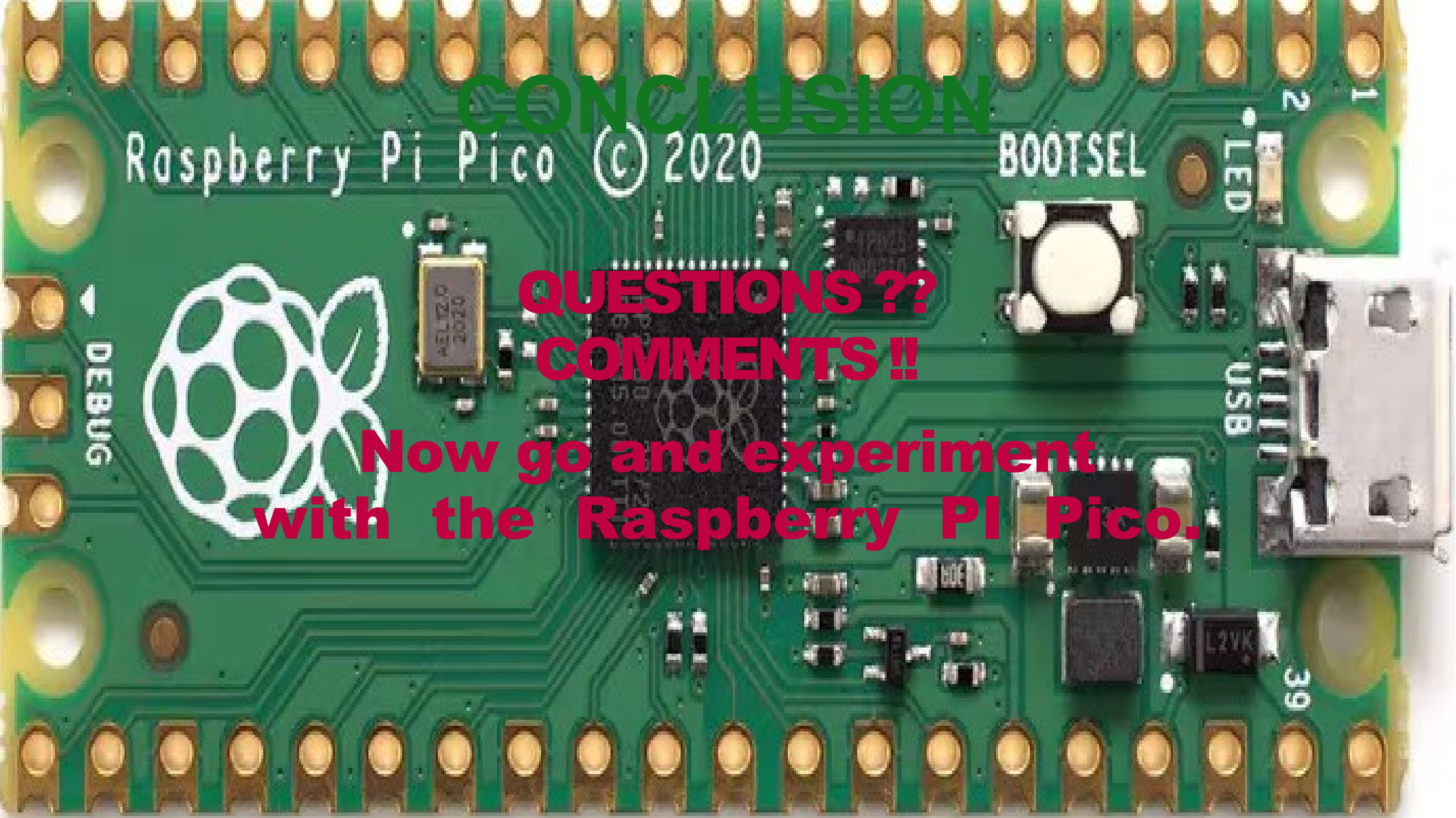
https://www.youtube.com/playlist?list=PLO4ZbWctTPUJKBk5rVGFkk5J67sAAZ5Ej

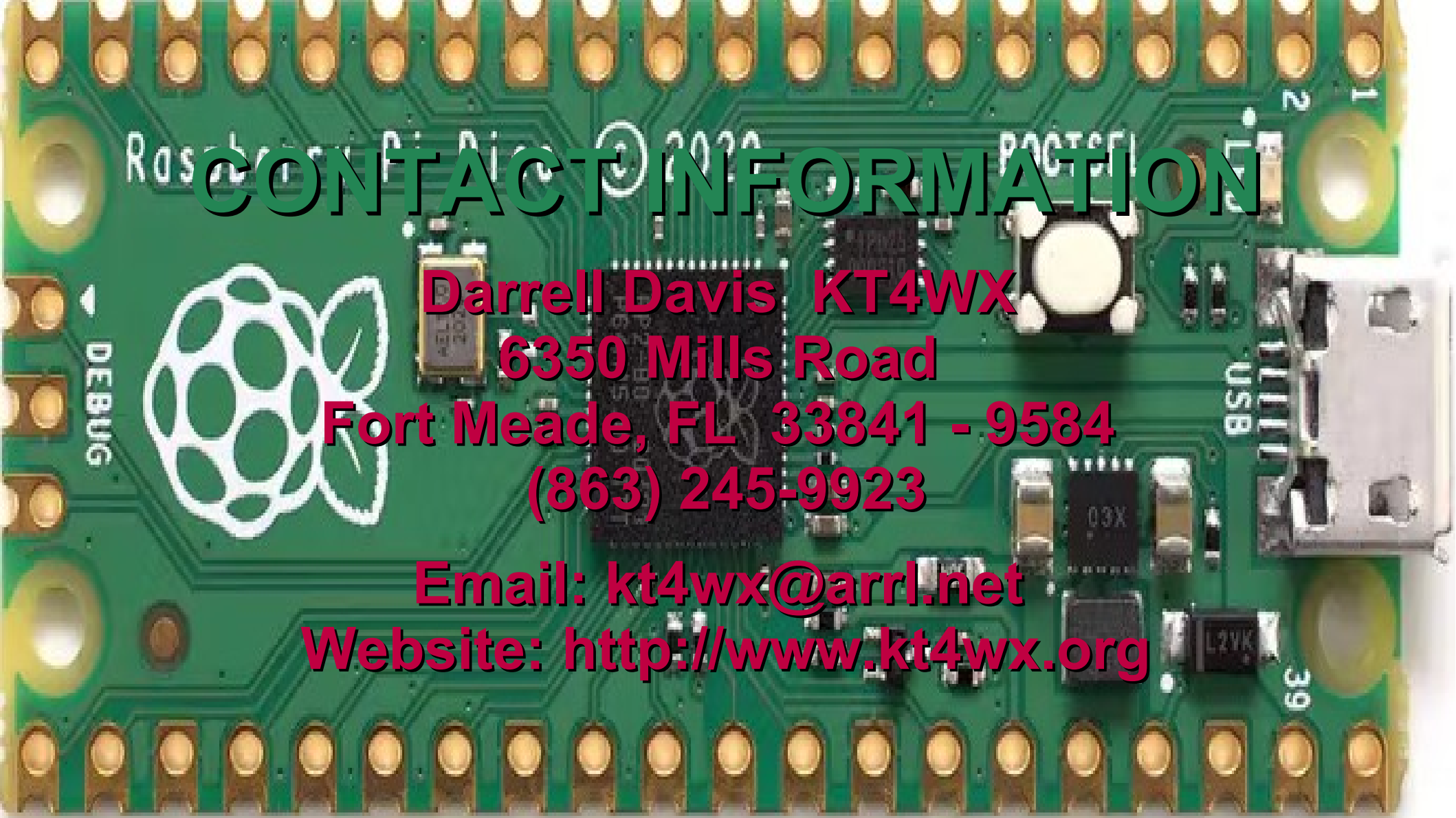
IV. RASPBERRY PI PICO RESOURCES

KEYESTUDIO Raspberry Pi PICO IO Shield for Raspberry Pi Pico Development Board:

Can be purchased through Amazon.




CONCLUSION
Raspberry Pi Pico ©2020
BOOTSEL
LED
USB
DEBUG
QUESTIONS ??
COMMENTS !!
Now go and experiment
with the Raspberry PI Pico.


CONTACT INFORMATION
Darrell Davis KT4WX
6350 Mills Road
Fort Meade, FL 33841 - 9584
(863) 245-9923
Email: kt4wx@arrl.net
Website: http://www.kt4wx.org